Brain Teaser

Team 8 - Object Oriented Dudes

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Problem Statement

- Dementia is a serious mental illness that is most common for people over the age of 65, but can also affect much younger people
- Early signs of the disease begin when people are in their 50s, 40s, and in some cases - even 30s
- The most powerful way to combat this illness is by exercising your mind

Objectives

- Design and implement a series of games, puzzles, and challenges that will help exercise the brain of eldery people and people with pre-existing conditions.
- These games will be fashioned to challenge the users' memory and problem solving skills.
- Provide a variety of games and puzzles for the user, so the user will have a unique experience every time they use the software

Functional requirements

- The *Player* will be able to play games.
- The *Player* will be able to view the scoreboard.
- The *Player* will be able to change their avatar.
- The *Player* will be able to unlock new words to add to their dictionary.
- The *Player* will also be able to participate in vocabulary exercise and keep track of how many daily challenges they have completed in a row.
- User information is securely stored and not publicly accessible.

Nonfunctional Requirements

- *UI,* must be intuitive to use and figure out
- *Low Operating Cost*, each game must be able to run without crashing the program on the lowest level desktops and laptops.

Constraints

- Should be able to be ran on any windows PC with the github repository completely cloned into IntelliJ IDE

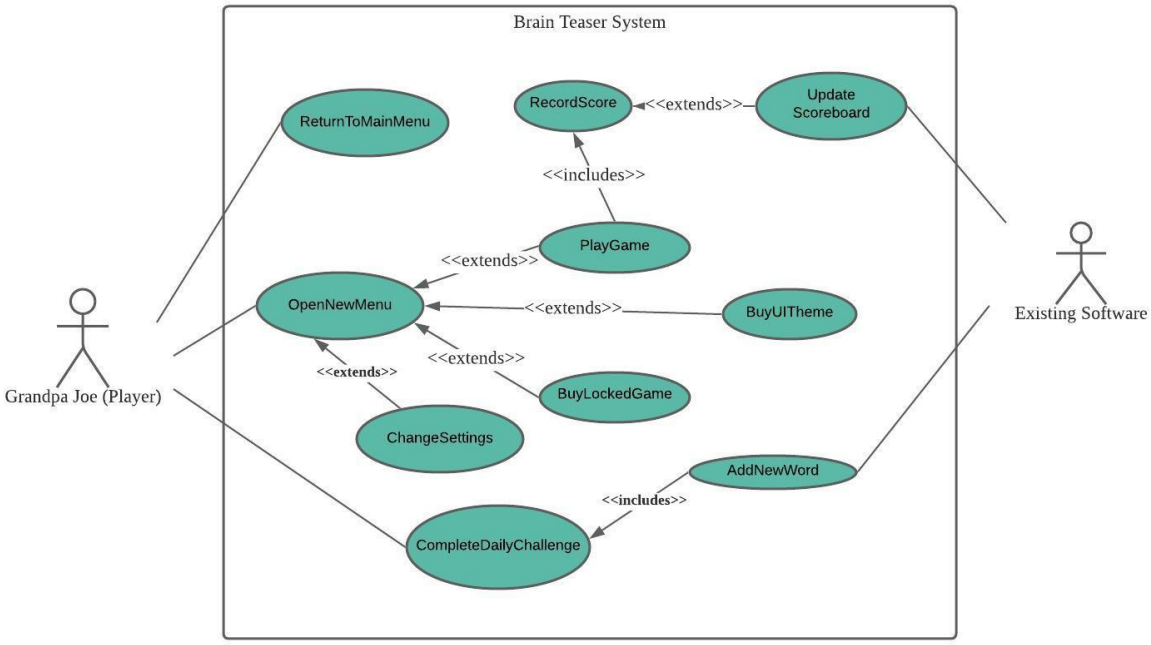
Actors and Scenario

- **Actors**
  - *Player*
  - *Existing Software*
- **Scenario Name**: playBrainTeaser
- **Participating Actor Instances:** grandpa Joe: Player, BrainTeaser: Existing Software.
- **Flow of Events**
  - Joe, starts brain teaser
  - Joe, clicks games tab in the main menu
  - Joe, plays Simon Says
  - Joe, clicks menu
  - Joe, goes to the scoreboard
  - Joe, clicks menu
  - Joe, goes to dictionary
  - Joe, clicks menu
  - Joe, clicks games tab in the main menu
  - Joe, plays HangMan
  - Joe, clicks menu
  - Joe closes Brain Teaser

- **Actors**
    - Player
    - Existing Software
- Scenario Name: Timmy Plays Brainteaser
- Participating actor instances: Timmy: Player, BrainTeaser: Existing Software.
- Flow of Events
    - Timmy, starts brain teaser
    - Timmy, clicks on main menu
    - Timmy, clicks on shop
    - Timmy, purchases Avatar
    - Timmy, confirms the purchase
    - Timmy, plays a game and record a score
    - Timmy, goes back to main menu
    - Timmy, goes to option
    - Timmy, changes avatar
    - Timmy, exits brain teaser

Diagrams

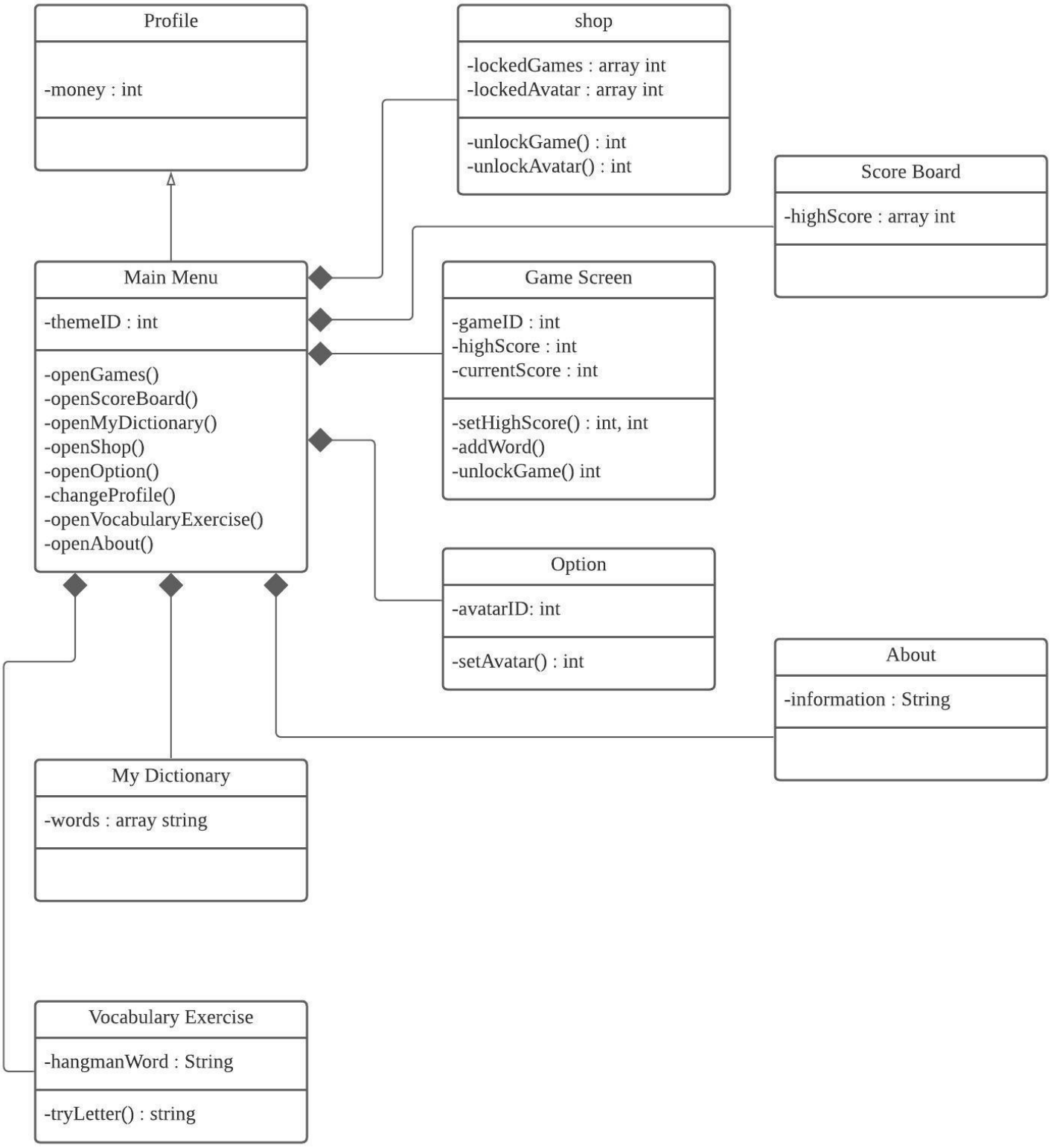
- **Use Case Diagram**



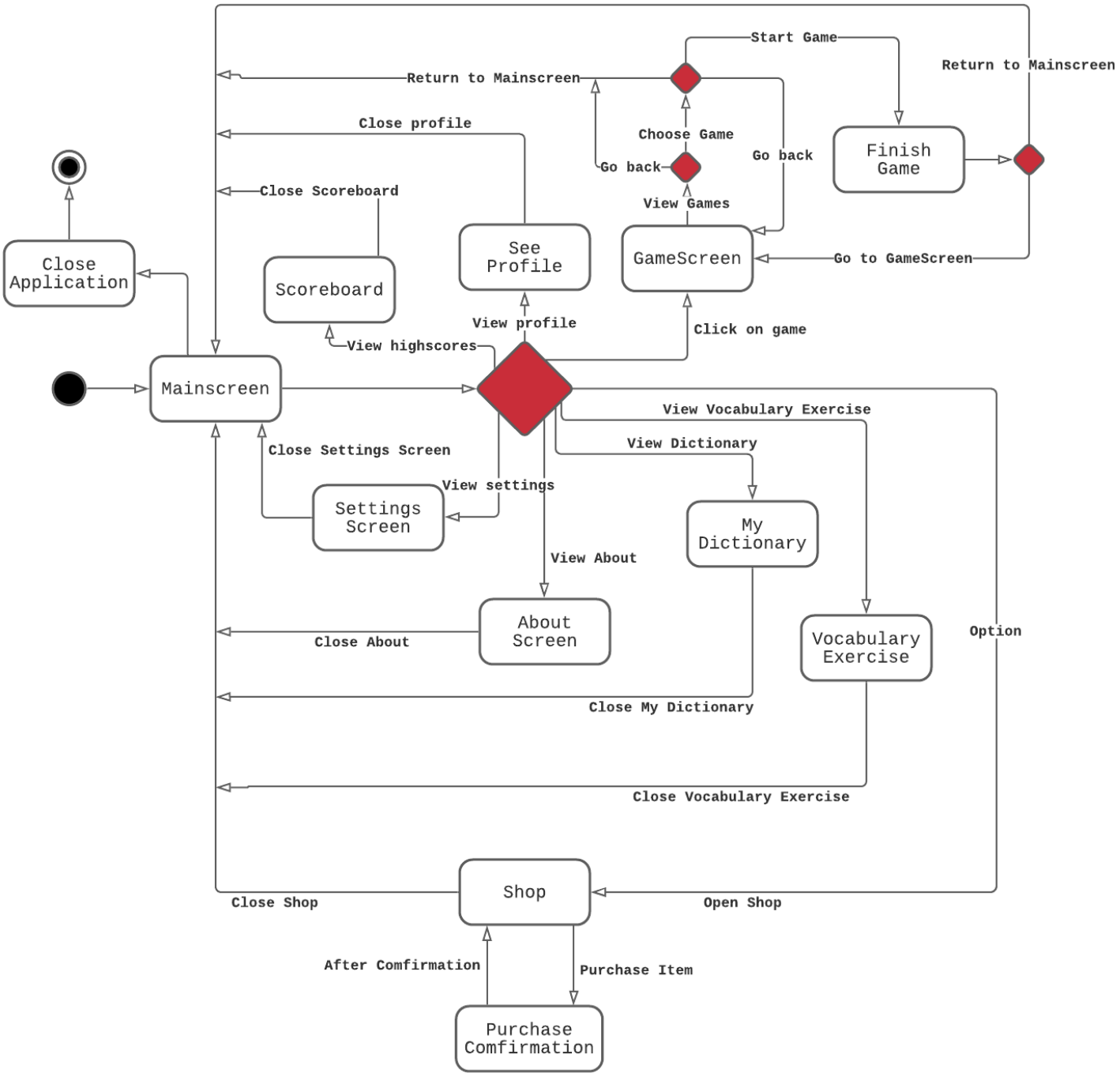
- **Domain Lexicon/Object Information**

Object	Object-Type	Attributes & Associations	Description
Profile	Entity	Money	Users of the system whose progress is saved and loaded during use sessions
Main Menu	Boundary	openGames() openScoreBoard() openShop() openOption() changeProfile() openChallengeofTheDay()	The main menu screen
Shop	Boundary	lockedAvatar unlockAvatar()	In game shop screen
Game Screen	Boundary	highScore currentScore setHighScore() addWord()	Where the actual games are played
Score Board	Boundary	highScore openGames() openScoreBoard() openShop() openOption() openChallengeofTheDay() openAbout()	Shows the current high score for each game
Option	Boundary	currentAvatar setAvatar()	Where you can adjust your avatar
Screen	Boundary	themeID screenSize	Overarching screen for entire application
About	Boundary	information	Shows the information about the game, developer and other credits
My Dictionary	Boundary	words	List of words archived from hangman
Vocabulary Exercise	Boundary	hangmanWord tryLetter()	Daily challenge that will have a word and picture of hangman

- **Class Diagram**

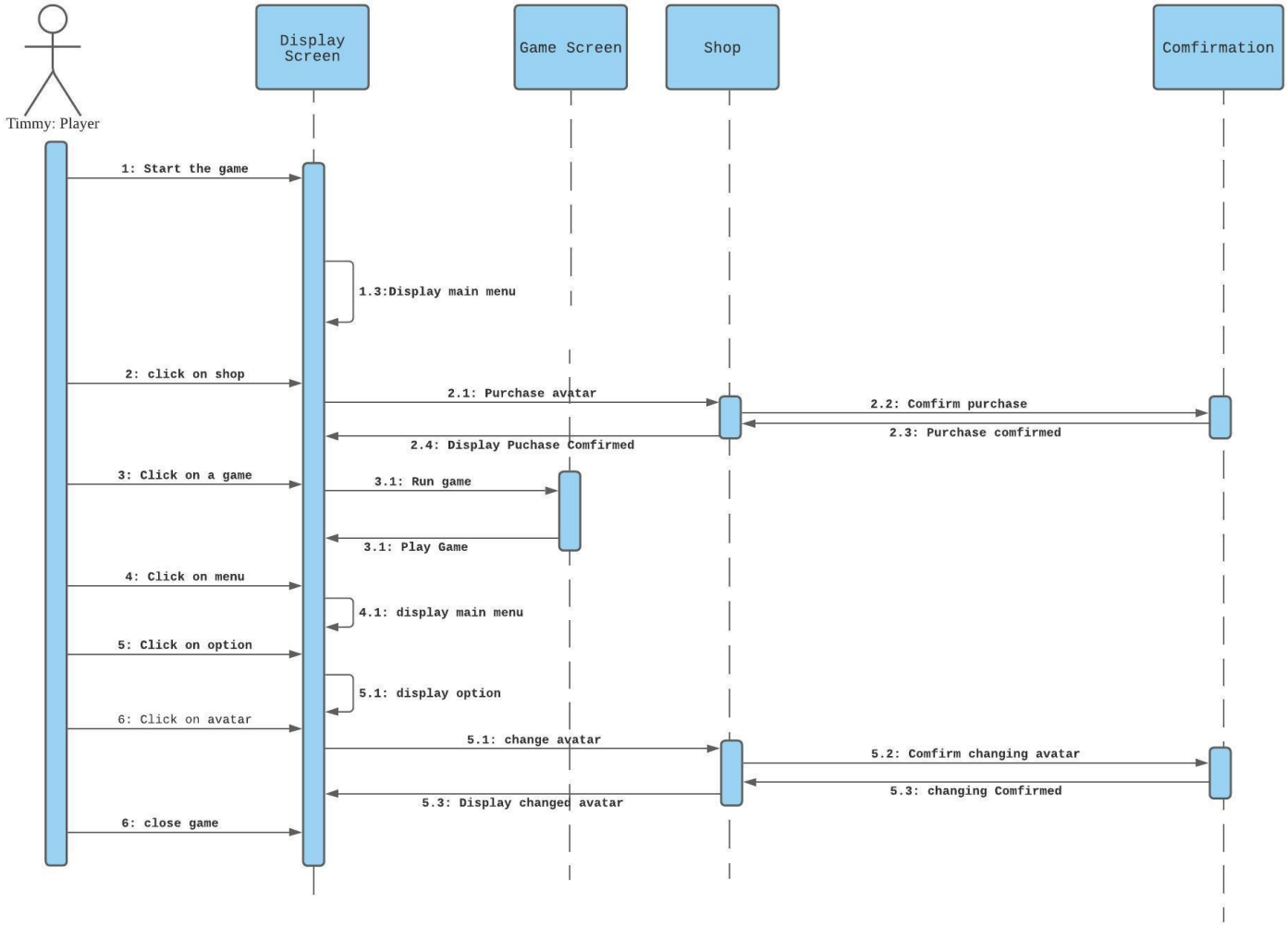


- **State Chart**


Start Game
Return to Mainscreen
Return to Mainscreen
Close profile
Choose Game
Go back
Go back
Finish Game
Close Scoreboard
View Games
Close Application
See Profile
GameScreen
Go to GameScreen
Scoreboard
View profile
Click on game
View highscores
Mainscreen
View Vocabulary Exercise
View Dictionary
Close Settings Screen
View settings
Settings Screen
My Dictionary
View About
About Screen
Close About
Vocabulary Exercise
Option
Close My Dictionary
Close Vocabulary Exercise
Shop
Close Shop
Open Shop
After Comfirmation
Purchase Item
Purchase Comfirmation

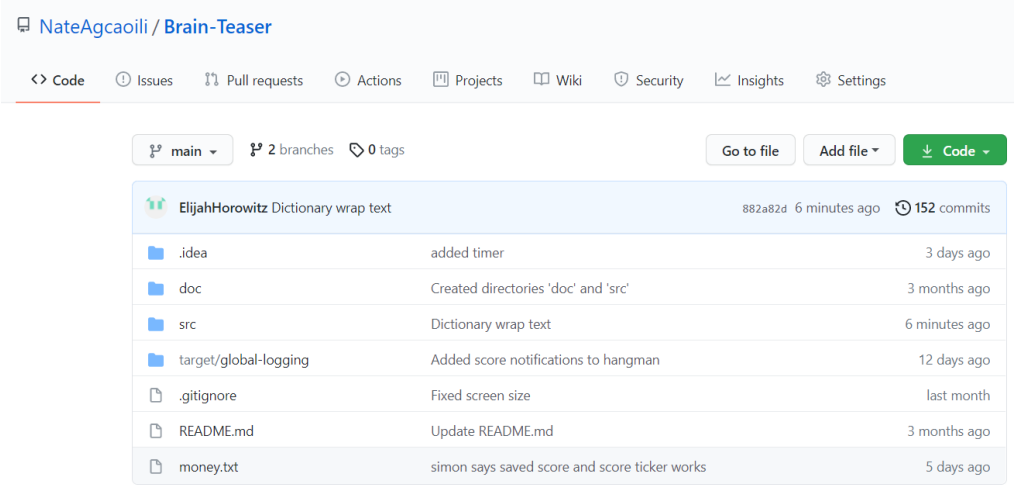
- **Sequence Diagram**

Use cases: Player named Timmy Purchasing game, playing game, and purchasing an avatar

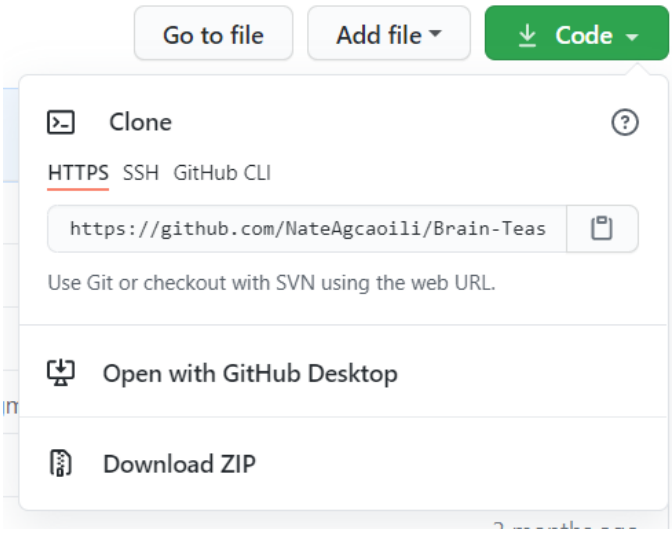


Installation Instructions

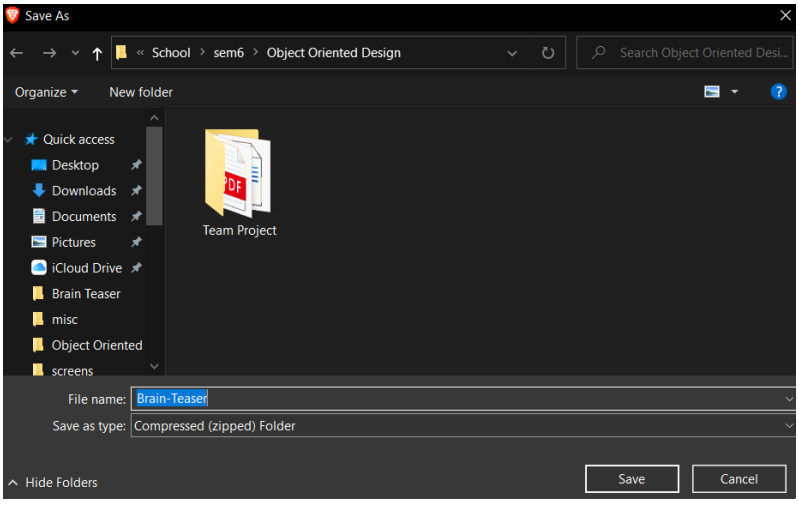
1. Go to (https://github.com/NateAgcaoili/Brain-Teaser)



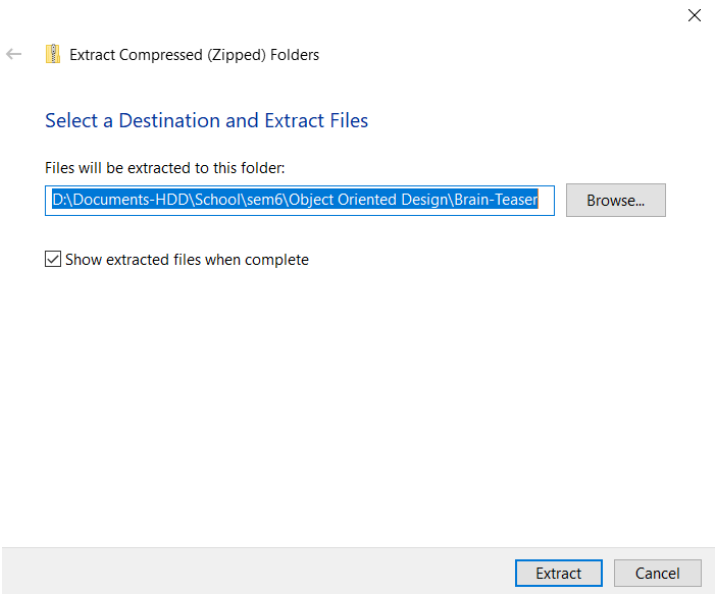
2. Click the green download code button and select ‘Download ZIP’



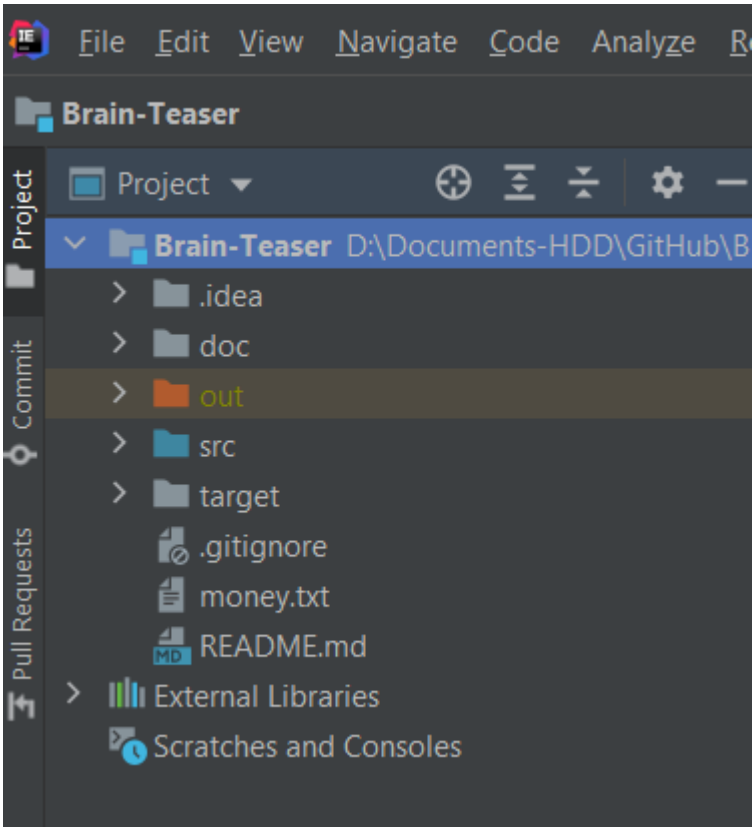
3. Choose a location to save the ZIP file on your local machine



4. Once the ZIP file is downloaded, extract to a directory of your choice



5. Run IntelliJ IDEA and open the extracted folder as a project



6. Click the green ‘Run’ button to start Brain Teaser

Conclusion and Final Thoughts

- Ever since the project was announced, our group has been highly motivated and excited to build software to help those with mental conditions. Throughout the planning process, we initially set our goals for production at a high standard; however, as we entered the development/implementation phase of the assignment, it became evident that some of the functionality we originally wanted to add was not achievable given the time constraints our group faced. In addition, feedback from peers and instructors guided us to scale down our program functionality. For example, one of the features that we originally wanted to add were accounts in which users could log in/out and switch between accounts for security reasons and multiple user support. We decided to scrap this feature due to it adding an extra layer of confusion for the users (who we presume to be elderly.) In addition, because the program does not contain any sensitive information of the user, adding a login system for security purposes would be unnecessary. Despite choosing not to implement irrelevant functionalities, we produced a product that was very similar to our original design goals and in many ways exceeded our expectations. Working in a group has been a unique experience for most of us, and we all feel as though we have gained invaluable communication and teamwork skills throughout the lifespan of this project. If it weren't for our equally combined efforts and dedicated free time towards the completion of this project, most-if not all of our goals would not have been achieved and our final product of Brain Teaser would not be what it is today.

GitHub Repository/Source Code

- https://github.com/NateAgcaoili/Brain-Teaser